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(71)Applicant : NIPPON STEEL CORP

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(72)Inventor : YAGI AKIRA

ASAHI HITOSHI

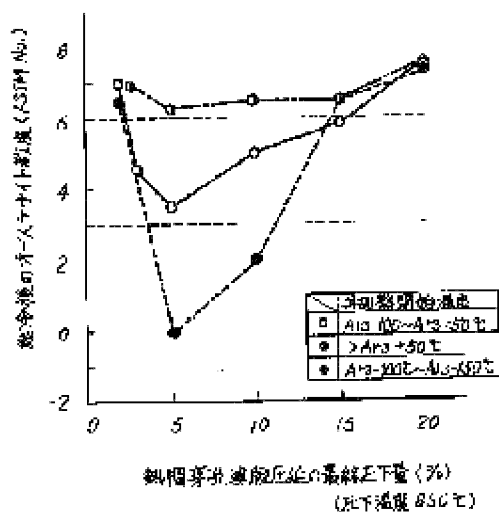
UENO MASAKATSU

## (54) PRODUCTION OF LINE PIPE MATERIAL HAVING HIGH STRENGTH AND LOW YIELD RATIO FOR LOW TEMPERATURE USE

(57)Abstract:

PURPOSE: To obtain a line pipe material having high strength and low yield ratio, excellent in toughness at low temp., and suitable for use in a cold district by specially controlling steel components and hot rolling conditions, respectively.

CONSTITUTION: A billet of a steel which has a composition containing, by weight, 0.02-0.15% C, 0.01-0.5% Si, 0.15-2.0% Mn,  $\leq 0.01\%$  S,  $\leq 0.02\%$  P, 0.005-0.1% Al, 0.0003-0.003% B, 0.005-0.2% Ti, and  $\leq 70$ ppm N as essential components and having the balance Fe is used. This steel billet is subjected, in the final stage of hot piercing continuous rolling, to working at  $900-700^{\circ}\text{C}$  at 3-15% reduction of area. The resulting hollow pipe stock, whose temp. is lowered down to a temp. in the range between (Ar3 point- $100^{\circ}\text{C}$ ) and (Ar3 point +  $50^{\circ}\text{C}$ ), is reheated up to  $900-1000^{\circ}\text{C}$  and subjected to hot finish rolling at (Ar3 point +  $50^{\circ}\text{C}$ ) finishing temp. Then, the resulting finished steel pipe is subjected to air cooling from  $\geq \text{Ar3}$  or is subjected, after air cooling, to heating up



to  $\leq \text{Ac3}$  and to air cooling to undergo tempering treatment.